

5. $x = 3t^2 - 12t + 1$ m at time t s.

Average velocity over interval $[1, 2]$ is

$$\frac{(3 \times 2^2 - 12 \times 2 + 1) - (3 \times 1^2 - 12 \times 1 + 1)}{2 - 1} = -3 \text{ m/s.}$$

Average velocity over interval $[2, 3]$ is

$$\frac{(3 \times 3^2 - 12 \times 3 + 1) - (3 \times 2^2 - 12 \times 2 + 1)}{3 - 2} = 3 \text{ m/s.}$$

Average velocity over interval $[1, 3]$ is

$$\frac{(3 \times 3^2 - 12 \times 3 + 1) - (3 \times 1^2 - 12 \times 1 + 1)}{3 - 1} = 0 \text{ m/s.}$$